2011 MOD/WER
Low Flows

Mixing Zone Predictions for Town of Boydton STP

Effluent Flow = 0.360 MGD
Stream 7Q10 = 0.0276 MGD
Stream 30Q10 = 0.0485 MGD
Stream 1Q10 = 0.025 MGD
Stream slope = 0.0011 ft/ft
Stream width = 6.0 ft
Bottom scale = 2
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .3504 ft
Length = 105.25 ft
Velocity = .2853 ft/sec
Residence Time = .0043 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .3623 ft
Length = 102.1 ft
Velocity = .2909 ft/sec
Residence Time = .0041 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .349 ft
Length = 105.58 ft
Velocity = .2846 ft/sec
Residence Time = .1031 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

2011 MOD/WER
High Flows

Mixing Zone Predictions for Boydton WWTP - High Flows

Effluent Flow = 0.360 MGD
Stream 7Q10 = 0.343 MGD
Stream 30Q10 = 0.49 MGD
Stream 1Q10 = 0.293 MGD
Stream slope = 0.0011 ft/ft
Stream width = 6.0 ft
Bottom scale = 2
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .5105 ft
Length = 74.54 ft
Velocity = .3553 ft/sec
Residence Time = .0024 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .5763 ft
Length = 66.54 ft
Velocity = .3805 ft/sec
Residence Time = .002 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .4869 ft
Length = 77.89 ft
Velocity = .3459 ft/sec
Residence Time = .0625 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

Planning Statement for VPDES Permit Application Processing DEQ-SCRO

VPDES	OwnerName	Facility	County
VA0026247	Town of Boydton	Municipal STP	Mecklenburg

Outfall #: 001

River Basin: Roanoke River **Receiving Stream:** Coleman Creek

Subbasin: Roanoke River

Watershed Code: L78R **River Mile:** 3.54

	MGD		MGD
1Q10	0.025	**HF 1Q10**	0.293
7Q10	0.0276	**HF7Q10**	0.343
30Q5	0.0761	**HF30Q10**	0.49
30Q10	0.0485	**HM**	0

Modeling Notes

Model Completed 1995 - Represent expanded flow limits

WQMP Name 9 VAC 25-720-80

Statement CBOD5, May-Nov 17.7 kg/day TKN, May-Nov 4.1 kg/day

TMDL ID None

Impairment Cause None

TMDL Due Date

Completed TMDL Information

None

TMDL Approval Dates

Amanda B. Gray

2/2/11

Amanda B. Gray, Water Planning Engineer or Paula Nash, TMDL Coordinator **Date**

MEMORANDUM
Department of Environmental Quality
Blue Ridge Regional Office

7705 Timberlake Road **Lynchburg, Virginia 24502**

Subject: Planning and TMDL Service Requests for VPDES Permits

To: Amanda Gray, Water Planning Engineer to
Paula Nash, TMDL Coordinator

From: Leah Revelle

Date: 1/31/2011

Copies: Planning File

The request for information is to be made at the following times:

Planning: Upon sending the reissuance reminder letter to the facility or, for an issuance or modification, at the time of application/modification request receipt.
TMDL: Same as above. For VPDES general permits, at the time of registration statement receipt.

FACILITY NAME: Town of Boydton STP

L76
Class III
Section I
PWS

VPDES PERMIT NO. VA0026247 EXPIRATION DATE: 3/7/2012

FACILITY PHYSICAL LOCATION: 950 Carter Lane Road, Boydton 23917

INDIVIDUAL PERMIT ACTION: Issuance Reissuance **Modification**

GENERAL PERMIT ACTION: New Coverage Previously Covered – N/A

PERMIT TYPE: Major **Minor** General **Municipal** Industrial Storm Water TMP TRE

If a VPDES General Permit, which type: _____

PERMIT WRITERS: ATTACH THE FOLLOWING

- **Topo map with facility location and outfall locations clearly marked (include any proposed outfalls)**
- **Site diagram for facilities with multiple outfalls**
- **Description or map showing effluent flow path if not apparent on topo map**
- **The outfall numbers, latitude, longitude, receiving stream and topo name in the table below (use an additional sheet if there are more outfalls)**

Outfall No.	Latitude	Longitude	Receiving Stream	Topo Name
001	36° 40' 9.7"	78° 22' 24.5"	UT, Coleman Creek	Pole Branch, 011A
002	36° 40' 9.6"	78° 22' 27.1"	Coleman Creek	Pole Branch, 011A

DATE INFORMATION NEEDED: 2/7/2011

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
South Central Regional Office - Water Planning
7705 Timberlake Road Lynchburg, VA 24502 434/582-5120

SUBJECT: Flow Frequency Determination
-Town of Boydton WWTP – VA#0026247

TO: Leah Revelle

FROM: Amanda Gray abgray

DATE: February 2, 2011

COPIES: File

This memo supersedes my August 7, 2006 to Kirk Batsel concerning the subject VPDES permit. The flow frequencies for the reference gage on Stony Creek near Dinwiddie, VA (#02046000) have not been recalculated since the last reissuance of the permit. Thus, the flow frequencies calculated for Coleman Creek during the last reissuance will remain current.

Coleman Creek at discharge point:
Drainage Area: 4.66 mi^2

1Q10 = 0.0388 cfs (0.025 MGD)	High Flow 1Q10 = 0.454 cfs (0.293 MGD)
7Q10 = 0.0427 cfs (0.0276 MGD)	High Flow 7Q10 = 0.5307 cfs (0.343 MGD)
30Q5 = 0.1178 cfs (0.0761 MGD)	High Flow 30Q10 = 0.7585 cfs (0.49 MGD)
30Q10 = 0.0751 cfs (0.0485 MGD)	Harmonic Mean = 0 cfs (0 MGD)

The high flow months are January through April. The harmonic mean could not be calculated due to the presence of zero flow events in the period of record for the reference gage. This analysis assumes there are no significant discharges, withdrawals or springs influencing the flow in Coleman Creek upstream of the discharge point.

If there are any questions concerning this analysis, please let me know.